

Appl. No. 10/072,415
Response to Office Action mailed 03/28/2007

In the Claims

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Claims 1-73 [canceled].

74. [Previously Presented] A field effect transistor fabrication method comprising:
providing semiconductive material including a channel region;
providing a source semiconductive region and a drain semiconductive region
adjacent to the channel region of the semiconductive material, and wherein the providing
the drain semiconductive region comprises providing at least one emitter;
providing gate dielectric material over the channel region;
providing a gate over the gate dielectric material and the channel region; and
wherein the providing the gate comprises polishing the gate dielectric material and
gate material to form the gate aligned with the channel region of the semiconductive
material.

75. [Previously Presented] The method of claim 74 wherein the providing the
semiconductive material comprises providing a thin film semiconductive layer.

76. [canceled].

77. [Previously Presented] The method of claim 74 wherein the providing the at
least one emitter comprises providing a plurality of emitters.

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78. [Previously Presented] The method of claim 74 wherein the providing the gate comprises providing the gate about the emitter.

79. [Currently Amended] A field effect transistor fabrication method comprising:
providing semiconductive material including a channel region;
providing a plurality of semiconductive regions adjacent to the channel region of the semiconductive material, wherein at least one of the semiconductor regions comprises an emitter; and

self-aligning a gate with the semiconductive regions after the providing the semiconductive regions; and

providing gate dielectric material over the channel region and the gate dielectric material including an upper surface substantially elevationally coincident with an upper surface of the gate.

80. [Previously Presented] The method of claim 79 wherein the providing the semiconductive material comprises providing a thin film semiconductive layer.

81. [Previously Presented] The method of claim 79 further comprising:
providing gate dielectric material over the channel region; and
providing gate material over the gate dielectric material;
wherein the self-aligning comprises polishing the gate dielectric material and the gate material.

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82. [canceled].

83. [Currently Amended] A field emission device fabrication method comprising:
providing semiconductive material;

providing a plurality of semiconductive regions adjacent to the semiconductive material, and wherein the providing the semiconductive regions comprises providing one of the semiconductive regions comprising a plurality of emitters; ~~and~~

providing a gate intermediate the semiconductive regions; and

wherein the providing the semiconductive regions comprises providing the semiconductive regions adjacent to opposing sides of a channel region of the semiconductive material, and wherein the semiconductive regions are elevationally above an uppermost surface of the semiconductive material.

84. [Previously Presented] The method of claim 83 wherein the providing the semiconductive material comprises providing a thin film semiconductive layer.

85. [Previously Presented] The method of claim 83 wherein the providing the semiconductive regions and the providing the gate comprise forming a field effect transistor.

86. [Previously Presented] The method of claim 83 wherein the providing one of the semiconductive regions comprising the emitters comprises forming a tip of one of the

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emitters elevationally below an upper surface of the gate and an upper surface of another one of the semiconductive regions.

87. [canceled].

88. [Previously Presented] The method of claim 83 wherein the providing the gate comprises providing the gate about one of the emitters.

89. [Currently Amended] A field emission device operational method comprising:
providing a plurality of semiconductive regions adjacent to a channel region, and
wherein at least one of the semiconductive regions comprises an emitter;

controlling current flow intermediate the semiconductive regions within the channel region and controlling emission of electrons from the field emitter using a gate intermediate the semiconductive regions; and

wherein the providing the semiconductive regions comprises providing the semiconductive regions adjacent to semiconductive material comprising a thin film semiconductive layer; and

wherein the semiconductive material comprises the channel region, wherein the providing the semiconductive regions comprises providing the semiconductive regions adjacent to opposing sides of the channel region, and wherein the semiconductive regions are elevationally above an uppermost surface of the semiconductive material.

Claims 90-91 [canceled].

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92. [Previously Presented] The method of claim 89 further comprising configuring the gate and the semiconductive regions to form a field effect transistor.

Claims 93-101 [canceled].

102. [Previously Presented] A field effect transistor fabrication method comprising:
providing semiconductive material including a channel region;
providing a plurality of semiconductive regions adjacent to the channel region of the semiconductive material;
providing a gate comprising gate material over the channel region of the semiconductive material without the use of a mask over the gate material; and
wherein the providing the semiconductive regions comprises providing a drain region comprising a field emitter.

103. [Previously Presented] The method of claim 102 wherein the providing the semiconductive material comprises providing a thin film semiconductive layer.

104. [Previously Presented] The method of claim 102 further comprising providing gate dielectric material over the semiconductive material, and wherein the providing the gate comprises aligning the gate with the channel region of the semiconductive material using gate dielectric material.

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105. [Previously Presented] The method of claim 102 wherein the providing the gate comprises removing portions of the gate material to self-align the gate with the channel region of the semiconductive material.

106. [Previously Presented] The method of claim 102 further comprising providing gate dielectric material over the semiconductive material, and wherein an upper surface of the gate dielectric material is substantially elevationally coincident with an upper surface of the gate.

107. [canceled].

108. [Previously Presented] A field effect transistor fabrication method comprising:
providing spaced semiconductive regions including a channel region positioned therebetween;

providing gate material and gate dielectric material over the channel region;

polishing the gate dielectric material and the gate material to form a gate intermediate the spaced semiconductive regions over the channel region; and

wherein the providing the semiconductive regions comprises providing a drain comprising a field emitter.

109. [Previously Presented] The method of claim 108 wherein the polishing aligns the gate with the channel region.

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110. [canceled].

111. [Previously Presented] The method of claim 108 wherein the polishing comprises chemical-mechanical polishing.

112. [canceled].

113. [Previously Presented] The method of claim 74 wherein the providing the drain semiconductive region and the providing the at least one emitter comprise etching.

114. [Previously Presented] The method of claim 83 wherein the providing the one of the semiconductive regions comprising the emitters comprises etching.

115. [canceled].

116. [Currently Amended] A field effect transistor fabrication method comprising:
providing semiconductive material including a channel region;
providing a source semiconductive region and a drain semiconductive region adjacent to the channel region of the semiconductive material, and wherein the providing the drain semiconductive region comprises providing a plurality of emitters;
providing gate dielectric material over the channel region; and
providing a gate over the gate dielectric material and the channel region; and

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wherein the providing the source and drain semiconductive regions comprises providing the source and drain semiconductive regions adjacent to opposing sides of the channel region of the semiconductive material, and wherein the source and drain semiconductive regions are elevationally above an uppermost surface of the semiconductive material.

117. [canceled].

118. [Previously Presented] A field emission device fabrication method comprising:

providing semiconductive material;

providing a plurality of semiconductive regions adjacent to the semiconductive material, and wherein the providing the semiconductive regions comprises providing one of the semiconductive regions comprising an emitter;

providing a gate intermediate the semiconductive regions; and

wherein the providing one of the semiconductive regions comprising the emitter comprises forming a tip of the emitter elevationally below an upper surface of the gate and an upper surface of another one of the semiconductive regions.

119. [canceled].

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120. [Previously Presented] The method of claim 74 wherein the providing the drain semiconductive region and the providing the at least one emitter comprise forming the drain semiconductive region and the at least one emitter to comprise a monolithic semiconductive material.

121. [Previously Presented] The method of claim 83 wherein the plurality of emitters are electrically coupled with a single one of another of the semiconductive regions via the gate comprising a single gate electrode.

122. [Previously Presented] The method of claim 89 wherein the providing the at least one of the semiconductive regions comprising an emitter comprises etching to form the at least one semiconductive region and the emitter.

123. [Previously Presented] The method of claim 79 further comprising providing the gate intermediate the semiconductive regions, and wherein the gate is configured to control a flow of electrons intermediate the semiconductive regions.

124. [Previously Presented] The method of claim 79 wherein the self-aligning the gate with the semiconductive regions forms a transistor comprising the gate and semiconductive regions.

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125. [Previously Presented] The method of claim 79 wherein the gate is the gate of a transistor, the providing the semiconductive regions comprises providing the semiconductive regions of the transistor, and the self-aligning comprises self-aligning the gate of the transistor with the plurality of semiconductive regions of the transistor.

126. [Previously Presented] The method of claim 79 wherein the self-aligning comprises self-aligning the gate with the plurality of semiconductive regions which are adjacent to opposing sides of the channel region.

127. [Previously Presented] The method of claim 79 wherein another of the semiconductive regions is not an emitter, and wherein the self-aligning comprises self-aligning the gate with the at least one of the semiconductive regions and the another of the semiconductive regions.

Claims 128-131 [canceled].

132. [New] A field effect transistor fabrication method comprising:

providing semiconductive material including a channel region;

providing a plurality of semiconductive regions adjacent to the channel region of the semiconductive material, wherein at least one of the semiconductor regions comprises an emitter;

self-aligning a gate with the semiconductive regions after the providing the semiconductive regions;

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providing gate dielectric material over the channel region;
providing gate material over the gate dielectric material; and
wherein the self-aligning comprises polishing the gate dielectric material and the gate material.

133. [New] A field emission device fabrication method comprising:
providing semiconductive material;
providing a plurality of semiconductive regions adjacent to the semiconductive material, and wherein the providing the semiconductive regions comprises providing one of the semiconductive regions comprising a plurality of emitters;
providing a gate intermediate the semiconductive regions; and
wherein the providing one of the semiconductive regions comprising the emitters comprises forming a tip of one of the emitters elevationally below an upper surface of the gate and an upper surface of another one of the semiconductive regions.